

REMARKS

Claims 1-27 and 34-37 are pending, claims 28-33 having been canceled without prejudice nor disclaimer of subject matter as a result of having previously been withdrawn in response to a restriction requirement. Independent claims 1, 11, 13 and 18 have been amended as described below, and four new claims 34-37, respectively depending from the four independent claims, have been added. Reconsideration is respectfully requested in light of the amendments and remarks made herein.

Turning now to the claim rejections, claims 1, 6, 8-11, 13, 17, 18, 23 and 25-27 are rejected under 35 U.S.C. § 103(a) based on US patent 6,668,246 to *Yeung et al.* (*Yeung*) in view of US patent 6,285,775 to *Wu et al.* (*Wu*).

Each of claims 2-5, 12, 14-16 and 19-22 stands rejected under 35 U.S.C. § 103(a) on this base combination of *Yeung* and *Wu* further in view of another reference: US patent 6,154,541 to *Zang* in the case of claims 2-4, 12, 14-16 and 19-21 and US patent 6,222,932 to *Rao et al.* (*Rao*) in the case of claims 5 and 22.

Yeung is directed to a system for protecting digital content using hardware-based identification and a variety of content protection mechanisms to provide different levels of access control to a particular item of digital content. Based on information provided by a client along with a content request, a server computes a protection level that indicates which content protection mechanism(s) are to be performed on content delivered to the client. The content protection mechanisms include watermark insertion, visual/perceptual scrambling, and data scrambling. Note that, unlike applicants' claimed invention, in *Yeung* the watermarking is separate from any scrambling operation that may be employed. Moreover, no detail is given in *Yeung* regarding either of these scrambling operations.

In a watermarking scheme described in *Wu*, a shuffling process can be employed to overcome the problem of uneven distribution in an image of embeddable DCT coefficients. For an image divided into 8×8 blocks, the quantized DCT coefficients of all blocks are concatenated into a single string, of which the first 64 are from the first image block, the next 64 are from the second

image block, and so on. Some of the blocks may not have any embeddable coefficient. To overcome this problem, *Wu* randomly shuffles the order of the coefficients in this string to produce another string of the same length. This random shuffling greatly increases the probability that each block will have at least one embeddable coefficient. See *Wu*, col. 10, lines 9-39.

There are important differences between this shuffling described in *Wu* and the shuffling recited in scrambling operation (iv) in each of independent claims 1, 11, 13 and 18. One such difference is that the shuffling in *Wu* is performed on a string that includes all of the coefficients from all of the blocks of the image, whereas in applicants' claimed invention the shuffling is only performed with respect to a particular sequence of blocks in a predetermined pattern area of the digital image. Secondly, applicants' claimed shuffling is performed only with respect a first type of coefficient, e.g., DC coefficient; not all of the coefficients in the blocks are subject to the shuffling. To further emphasize this latter point, each of the pending independent claims has been amended to indicate that the shuffling is on select bits of the first type of coefficient, but not of the second type of coefficient, among the blocks in the second sequence.

Thus, it is respectfully submitted that *Wu*, taken alone or in combination with *Yeung*, does not disclose nor teach any of the four scrambling operations recited in each of claims 1, 11, 13 and 18. The same is true for the other two references *Zhang* and *Rao*. *Zhang* describes public-key cryptographic systems, while *Rao* is directed to adjusting the strength of a watermark.

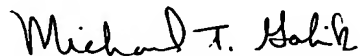
Each of new dependent claims 34-37 adds the further feature that the shuffling operation recited in (iv) comprises applying two pseudo-random permutations to the select bits. This feature further distinguishes applicants' invention over the cited references.

Accordingly, it is respectfully submitted that each of the pending independent claims is patentably distinguishable over any combination of the cited references. It is further submitted that each of the remaining dependent claims presently rejected is patentable for at least the same reasons as its corresponding independent claim.

Applicants gratefully acknowledge the indicated allowability of claims 7 and 24 subject to their being rewritten in independent form. In view of the amendments and remarks made herein, these claims have not been so rewritten at this time.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration of the present application.

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